REMARKS

The Office Action mailed March 8, 2006 has been received and reviewed. By the present Response, Claims 14-27 are cancelled, Claims 1, 4, 5, 7, 11, 28, 30, 33, and 35 are amended, and new Claims 54-57 are added. Currently pending in the application, then, are Claims 1-13 and 28-57, of which Claims 1, 28, and 35 are independent. No new matter has been introduced by this Response.

Specification amendments

The specification is amended to insert the serial number of the U.S. patent application that was filed on the same date as this case and that is incorporated by reference in to this case.

Claim Objections

The claims stand objected for because two claims are numbered as "42." In this response, the second Claim "42" has been renumbered as Claim "43," and original Claims "43-52" have been renumbered as Claims "44-53." Accordingly, this basis for objection is overcome.

Claim Rejections Under 35 USC § 101

Claims 35-52 stand rejected under 35 U.S.C. 101, because the claimed invention is allegedly directed to non-statutory subject matter. Independent Claim 35 is amended to clarify that in the steps of "positioning the bracket," the bracket is being positioned "in a suspended position at least partially offset from the model teeth." This produces the tangible, real-world result of properly positioning the brackets relative to the model teeth so

that the brackets can be fixed in place (for example, by encapsulating or embedding them in adhesive masses) and a transfer tray can be formed. Thus, this claim defines statutory subject matter. Claims 36-52 dependent from Claim 35, so these claims include the same recital. Accordingly, this basis for rejection of Claims 35-52 is overcome.

Claim Rejections

Claims 1, 4-13, 28-33, 35, 42-47 and 49 stand rejected under 35 U.S.C. 102(b) as allegedly being anticipated by Chen (USPN 6,120,287). Claims 1-3, 7-13, 28-33, 35, 37, and 42-50 stand rejected under 35 U.S.C. 102(b) as allegedly being anticipated by Creekmore (USPN 4,812,118). Claim 34 stands rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Chen or Creekmore in view of Cusato (USPN 4,001,940). Claims 36 and 38 stand rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Chen and Creekmore in view of Allesee (USPN 5,820,370). Claims 40-41 stand rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Chen and Creekmore in view of Aspel (USPN 3,906,634). And Claims 39 and 51 stand rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Chen and Creekmore. The rejections to independent Claims 1, 28, and 25 are overcome for the same reasons, so these claims will be addressed together.

Claims 1, 28, and 25 are each amended to clarify that the unique register assemblies and bracket holder of the device permit positioning the brackets "in a suspended position at least partially offset from the model teeth." The device works to permit determining the ideal position of each bracket relative to each corresponding model tooth, and precisely positioning the brackets with six degrees of freedom in those positions (which practically always are in suspended positions offset from the model teeth). After the brackets are transferred to the patient's actual teeth and after a period of time, the patient's

actual teeth are all aligned in a smooth arch and the brackets are all aligned in a smooth arch.

With respect to Chen, this reference discloses a device for simulating and measuring forces on teeth. It is used with a model set of teeth, but it does not include a bracket holder and it discloses nothing about positioning orthodontic brackets on the model teeth. Chen discloses measuring "torque," but in torque's traditional meaning of "a turning or twisting force," not in the specific meaning of torque as the term is used in the orthodontic field. In orthodontics, torque means "a rotational movement of a tooth in a vertical plane in the facial-lingual direction (i.e., around the axis formed by the arch-wire)" as the term is used in the present application. For clarity, a rough drawing of a tooth illustrating torque, as well as the other registered values referred to in Para. [0110], is enclosed and marked Exhibit "A."

With respect to Creekmore, this reference discloses a device with a template against which each model tooth is pushed and movably adjusted. Thus, the template is in a fixed position and the model teeth set is moved into engagement with the template. Also, with the Creekmore device, the brackets are then positioned directly against the model teeth. This is distinct from the claimed invention, in which the register assemblies are adjustably movable into contacting engagement with the teeth to precisely register their actual fixed positions. And the adjustable bracket holder can be used to precisely position each bracket in three dimensions in a suspended position offset from the model teeth.

Based on these distinctions, Claims 1, 28, and 25 are now believed to be in condition for allowance. Claims 2-13, 29-34, and 36-53 are dependent from these claims, so they too are now believed to be in condition allowance.

Various of the dependent claims, and distinctions over the cited references, will be now additionally addressed. Claim 2 defines the vertical register assembly including two adjustably spaced-apart arms for registering the axial position of the teeth. On the other

hand, the cited structure in Creekmore is a tong-like mechanism for gripping the bracket by inserting the ends of the tongs into a slot (see col. 11, lines 14-23).

Claim 3 defines the rotation register assembly including two adjustably spaced-apart arms for registering the rotational position of the teeth. On the other hand, the cited structure in Creekmore is an elongated strip with two opposing ends that are not adjustable and not for use on the same tooth (see col. 8, lines 66-68).

Claims 4-6 as amended define the torque register assembly including a register head that is *pivotally* adjustable and is angularly biased towards a generally vertical plane for maintaining a flush contact with the teeth, and that has a cross-shaped engagement surface for registration in two dimensions. On the other hand, the structure cited in Chen as a registration head is truly rotation, is not biased towards a vertical plane, and has no part that is cross-shaped. (The Applicant is unclear if the Examiner intended to identify component 26 as the registration head or if he possibly meant to refer to component 56, but either way the Applicant's position is the same).

Claims 7 and 30 define the register assemblies being free-floating, spring-loaded, and biased towards the teeth. On the other hand, the cited structures in Chen and Creekmore include springs, but not for biasing the register assemblies towards the teeth in a free-floating manner. For example, spring 139 in Creekmore compensates for thread looseness in the adjustable the bracket holder, and spring 140 biases away from the teeth (see col. 10 and Fig. 1).

Claim 11 defines two attachment mechanisms that are compatible with the torque register assembly and the bracket holder assembly so that the torque register assembly and the bracket holder assembly may be interchangeably attached to either of the attachment mechanisms. On the other hand, neither Chen nor Creekmore disclose any type of attachment mechanism that interchangeably receives another part.

Claim 33 includes a clip that is adapted to hold the bracket. The Examiner states that because Chen and Creekmore mention holding a bracket that therefore this element is met. The Applicant respectfully points out that neither Chen nor Creekmore disclose a clip, at least not one that holds an orthodontic bracket for positioning the bracket relative to teeth.

Claim 34 defines the bracket receiver and the clip being keyed so that they automatically align together. Neither Chen, Creekmore, nor Cusato disclose such a keyed arrangement. Cusato merely discloses a device that holds rubber bands but that is not keyed for any alignment, at least not for anything resembling a clip for holding an orthodontic bracket.

Furthermore, new claims 54 and 55 define encapsulating or embedding the bracket in an adhesive mass in the suspended position offset from the model teeth, and leaving exposed two open ends of an opening in the bracket so that a wire can be inserted through it. This is shown and described in FIGS. 67 and 69 of the drawings, and in Para. [0091] and throughout the drawings of U.S. patent application Ser. No. 10/749,918, which is incorporated by reference. None of the cited reference disclose encapsulating or embedding orthodontic brackets in a suspended position offset from model teeth. Therefore, new Claims 54 and 55 are believed to be in condition for allowance.

Finally, new claims 56 and 57 further define novel aspects of the register arms of the vertical and rotational register assemblies.

CONCLUSION

In view of the amendments submitted herein and the above comments, it is believed that all grounds of rejection are overcome and that the application has now been placed in full condition for allowance. Accordingly, Applicant earnestly solicits early and favorable action. Should there be any further questions or reservations, the Examiner is urged to telephone Applicant's undersigned attorney at (770) 984-2300.

Respectfully submitted,

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